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To:	Chip Humphrey/R10/USEPA/US@EPA; Eric Blischke/R10/USEPA/US@EPA
Cc:	MCCLINCY Matt
Subject:	Approach for Upstream Sampling
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Eric & Chip,
Matt & I have been considering the approach the EPA/partners CSM Subgroup designed to develop the SOW needed to fill RD2 data gaps re: upstream sampling…, & we have a couple of ideas.

Purpose of the Upstream Sampling

EPA's 12/2/05 Data Gaps letter said that an understanding of upstream conditions is required to:

1) Estimate loading from upstream.

2) Determine whether contaminant sources upstream of PH are being transported into PH during episodic (hi flow) events.

3) Determine background concentrations of naturally occurring metals & ambient levels of anthropogenic contaminants in LWR watershed.

4) Establish Site boundary.

5) Assess recontamination potential.

6) Evaluate MNR.

In their 1/11/06 letter, the LWG's proposed an approach to filling the upstream data gaps addresses only 2 of the objectives described above:

1) Contaminant loading to the ISA during both typical hydro conditions & hi flow events.

2) Background & anthropogenic concentrations.

The EPA/partners CSM Subgroup developed a SOW in 1/06 that includes:

1) Grid surface & subsurface sediment sampling upstream of the Study Area to help define Site boundary. These samples **may** also be able to be used to at least partially estimate loading & assess recontamination potential.

2) Biased surface & subsurface sediment sampling at known or suspected upstream sources (Cargill, PDX MGP plant, City OFs, SWF, PGE Station L, Zidell). Samples will be able to be used to determine if large sources of sediment contamination exist upstream of the study area. Samples **may** also be able to be used to at least partially estimate loading & assess recontamination potential.

Here's where Matt & I aren't sure we heard the same thing from the EPA/partners CSM Subgroup…, I didn't hear that our proposed SOW would include the surface water & suspended sediment sampling the LWG proposed at RM 11 & RM 16…, Matt thinks our proposal will include the sampling the LWG proposed in their 1/11 letter.

Problems with EPA/partners' Approach

EPA/partners approach addresses several of the objectives, but doesn't fully address the following:
1) Loading/Recontamination- The LWG 's approach includes the "*collection of surface water & suspended sediment across a range of flow conditions at the upstream end of the Study Area (RM 11) & at the upstream end of the downtown reach (RM 16) to characterize the nature of deposited sediment in these reaches*", and "*collection of sediment cores from known depositional zones in the upstream portion of the Study Area for stratigraphic interpretation, radioisotope analysis, & contaminant chemical analyses with depth to provide empirical; evidence of chemical concentrations in sediments deposited during past high-flow events*".

EPA/partners' approach doesn't include these elements (although the LWG's Sedflume work may provide some of this information). While EPA/partners' approach will help to define the Site & will evaluate the presence of potentially large sources of sediment contamination upstream of the Study Area, our approach does not specifically & completely evaluate loading/recontamination potential…, i.e., our approach will evaluate the presence of upstream contamination, but it will not tell us what's coming into the site under different flow conditions.

Recommendation- EPA/partners' SOW should include at least part of the LWG's recommended approach: collection of surface water & suspended sediment across a range of flow conditions at the upstream end of the Study Area (RM 11.5) & at the upstream end of the downtown reach (RM 13.1, immediately upstream from the Hawthorne Bridge) to characterize the nature of deposited sediment in these reaches. EPA/partners' SOW already includes upstream core samples, but the cores samples were located largely to define the Site and evaluate upstream sources of contamination…, & may not be in locations that best evaluate what's coming into PH. We recommend a series of cores samples (4 to 6 sample locations) be located on each of 2 bank-to-bank transects in depositional areas in the vicinity of RM 11.5 & RM 13.1. Continuous cores should be collected, undergo stratigraphic interpretation, analyzed for PH COI, & analyzed for radioisotopes to date the samples.

2) Sediment Sampling off City Outfalls in Downtown Reach- Our conceptual hydrodynamic model for the downtown reach has been a narrow, high-energy, high-velocity, channelized reach where sediment enters into the reach from upstream, but passes thru in a conveyor belt-type manner with little, long-term deposition. I'm not sure we'll find sediment (or sediment representing outfall discharge) off the City outfalls in the downtown reach. If we want to properly evaluate the load these City outfalls may be contributing to the LWR, we may want to consider in-pipe sampling of either accumulated sediment or in-line sediment traps. I talked to Rick Applegate 1/27 & he said the City has recently begun to think about this.

Recommendation- Retain our proposal to sample off certain City outfalls upstream of the Study Area, but also talk to the LWG &/or the City about in-line sediment sampling. We should also be aware that the City is trying to eliminate or limit stormwater discharge from at least some of these outfalls thru their CSO/Big Pipe Project. We should talk to the City about the status.

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